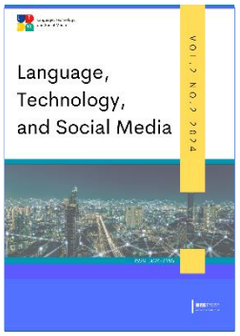


LANGUAGE, TECHNOLOGY, AND SOCIAL MEDIA

ISSN: 3026-7196

Consonantal Variation of Hindi-Urdu Loanwords in Standard English: A Phonological Analysis

Bairam Khan✉, Mohammad Asad✉ and Mahboob Zahid✉

To cite this article. B. Khan, M. Asad, and M. Zahid, "Consonantal Variation of Hindi-Urdu Loanwords in Standard English : A Phonological Analysis," *Lang. Technol. Soc. Media*, vol. 2, no. 2, pp. 145–159, 2024.
DOI: https://doi.org/10.70211/ltsm.v2i2.77

To link to this article:

Published online: 03 November 2024

Submit your article to this journal

View crossmark data

OPEN ACCESS

Language, Technology, and Social Media Vol 2 No 2 (2024) https://doi.org/10.70211/ltsm.v2i2.77

Check for updates

Research Article

Consonantal Variation of Hindi-Urdu Loanwords in Standard English: A Phonological Analysis

Bairam Khan*, Mohammad Asad, and Mahboob Zahid

Received : 10 Augustus 2024	Revised : 26 October 2024	Accepted : 02 November 2024	Online : 03 November 2024

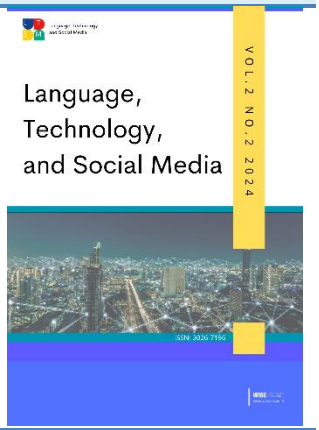
Abstract

This study explores the complex phonological transformations involved in adapting Hindi-Urdu loanwords into Standard English. Examining a corpus of approximately 300 loanwords, this research identifies systematic phonological changes such as deaspiration, devoicing, deretroflexion, and deuvularization that align these borrowed words with English phonotactic norms. For instance, Hindi-Urdu aspirated sounds typically lose aspiration in English, while retroflex consonants shift to alveolar positions, reflecting the structural requirements of English phonology. These transformations underscore the adaptability of Hindi-Urdu phonemes in response to English phonetic constraints, facilitating smoother integration into the English sound system. Additionally, deviations from expected patterns, or "misiterations," reveal the influence of perceptual and sociolinguistic factors that add complexity to the adaptation process. By focusing on consonantal changes specifically, this study fills a gap in the literature on phonological adaptation in cross-linguistic contexts, particularly between Indo-Aryan and Germanic languages. The findings provide a detailed view of consonantal adjustments that occur in loanwords, enhancing our understanding of language contact dynamics. This research also suggests new interdisciplinary avenues for exploring phonological adaptation by incorporating cognitive and sociolinguistic perspectives to further analyze the complexities of loanword integration.

Keywords: Phonological Adaptation; Hindi-Urdu Loanwords; English Phonology; Consonantal Change; Language Contact

Publisher's Note:

Wise Pendidikan Indonesia stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



INTRODUCTION

The shared history between Britain and India has had a profound impact on both cultures, particularly in the realm of language. One of the most evident outcomes of this historical interaction is the extensive lexical borrowing that has enriched both English and Hindi-Urdu. Lexical borrowing, or the adoption of words from one language into another, often reflects deeper cultural, social, and economic exchanges between communities. As Danica Salazar [1], World English Editor for the *Oxford English Dictionary* (OED), stated in the release notes from 2017, "Seventy words originating from and chiefly used in Indian English have been added to the OED in this latest update", which highlights the continuous enrichment of English with loanwords from Indian languages. The phonological and lexical adaptation of loanwords, however, goes beyond mere addition to the lexicon; it reveals intricate processes of language contact, cultural interaction, and phonological adjustments that occur during borrowing.

Loanwords from Hindi-Urdu, which belong to the Indo-Aryan language family, have significantly impacted the English lexicon. Despite the orthographic differences between Hindi (written in Devanagari) and Urdu (written in a modified Perso-Arabic script), both languages share a high degree of mutual intelligibility and cultural overlap. Numerous studies have documented the lexical contributions of Hindi-Urdu to English, including everyday terms like *bungalow*, *jungle*, *chutney*, and *avatar*, which are now commonly used in English. Such loanwords reflect both historical trade and colonial exchanges [2], [3]. However, lexical borrowing is only one aspect of the influence of Hindi-Urdu on English; the phonological transformations that accompany loanword adaptation also play a critical role in understanding the dynamics of linguistic borrowing. Previous studies have explored the process of loanword adaptation from various linguistic perspectives. Research by Ahmed Hamid Abdulrazzaq and Sundus Muhsin al-Ubaidy [4] and Pethias Siame et al. [5] has shed light on the phonological and morphological changes that loanwords undergo when integrated into a recipient language. In particular, there is research in the field of computational linguistics that has provided valuable tools for analyzing variation and change in loanword usage across different linguistic contexts [6], [7], [8]. Despite the existence of a broad literature on loanwords in general, particularly in English, the phonological adaptation of Hindi-Urdu loanwords has been relatively underexplored, especially in terms of consonantal variation. This research seeks to fill this gap by focusing on the consonantal sound changes in Hindi-Urdu loanwords and how they are adapted into the English phonological system, a topic that has not received sufficient attention in prior studies (see Figure 1).

#vl ⟶ voiceless, #vd ⟶ voiced, #unasp ⟶ unaspirated & #asp ⟶ aspirated sounds

Consonant Type	Aspiration	Bilabial		Labio-dental		Alveolar		Dental		Retroflex		Palatal		Velar		Uvula	Glottal	
		vl	vd	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd	vl	vl	vd
Stop	Unasp	p	b					t̪	d̪	ʈ	ɖ			k	g	q		
	Asp	pʰ	bʰ					t̪ʰ	d̪ʰ	ʈʰ	ɖʰ			kʰ	gʰ			
Affricate	Unasp											ʧ	ʤ					
	Asp											ʧʰ	ʤʰ					
Fricative	Unasp			f		s	z			ʂ		ʃ	ʒ	x	ɣ			ɦ
Nasal	Unasp		m						n		ɳ				ŋ			
Trill	Unasp												r					
Flap	Unasp										ɽ							
	Asp										ɽʰ							
Approximant	Unasp				v		l						y					

Figure 1. The Hindi-Urdu Consonant Phonemes [9]

Phonologically, Hindi and Urdu differ in several ways from English, particularly in terms of consonantal clusters. Hindi, for instance, allows consonant clusters at the beginning of a syllable, such as /kr/, /st/, and /ʃr/, whereas Urdu restricts such clusters [10], [11], [12]. English, on the other hand, is more permissive in allowing complex consonantal onsets and codas. Borrowed words from Hindi-Urdu often undergo phonological adaptation to align with the constraints of English phonotactics. In terms of final syllable positions, Hindi-Urdu exhibits a variety of consonant clusters, such as Stop + Stop (/vʌqt̪/ 'time') and Stop + Fricative (/lʊt̪f/ 'enjoyment') [13], [14], while English allows clusters of up to four consonants (e.g., *texts* /teksts/), as illustrated in Figure 2. The adaptation of these clusters during the borrowing process represents a key area where phonological change is evident, yet little has been done to systematically analyze these shifts in the context of Hindi-Urdu loanwords in English.

#vl ⟶ voiceless, #vd ⟶ voiced

Consonant Type	Bilabial		Labio-dental		Dental		Alveolar		Palatal-alveolar		Palatal		Velar		Glottal	
	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd	vl	vd
Stop	p	b					t	d					k	g		
Fricative			f	v	θ	ð	s	z	ʃ	ʒ					h	
Affricate											ʧ	ʤ				
Nasal		m						n						ŋ		
Lateral								l								
Approximant	w									r		y				

Figure 2. English Consonant Phonemes [9]

Many previous works have focused on the socio-cultural and historical contexts of lexical borrowing, such as the studies of loanwords in Japanese [15] and Korean [16]. While these studies have contributed valuable insights into the sociolinguistic aspects of loanword usage, they do not delve into the phonological processes involved in the adaptation of loanwords from Hindi-Urdu into English. This study, therefore, represents a novel contribution by specifically addressing the consonantal phonological changes in Hindi-Urdu loanwords as they are assimilated into the English sound system.

The novelty of this research lies in its focus on the underexplored area of consonantal adaptations in loanwords, particularly from Hindi-Urdu into English. While previous studies have examined loanwords from other language pairs, such as Spanish loanwords in Hopi [17] and Arabic loanwords in Amharic [18], this study contributes new insights into the phonological processes that Hindi-Urdu loanwords undergo when borrowed into English. By focusing on consonantal changes, this research not only fills a gap in the current body of knowledge but also provides a more nuanced understanding of the dynamics of linguistic borrowing, particularly in the context of Germanic and Indo-Aryan language contact. The study's findings are expected to have broader implications for theories of phonological adaptation and language contact in multilingual settings. In conclusion, this study investigates the phonological changes that occur in Hindi-Urdu loanwords, specifically focusing on consonantal sound changes during their adaptation into the English language. This research aims to contribute to the broader understanding of loanword adaptation by providing a detailed analysis of how phonological processes shape the integration of loanwords across different language systems. Through this investigation, the study enhances the existing literature on language contact and loanword phonology, offering new insights into the complexities of linguistic borrowing between Hindi-Urdu and English.

METHODS

For this study, a mixed-methods approach is employed to comprehensively investigate Hindi-Urdu loanwords in Standard English. This approach integrates both qualitative and quantitative methods to provide a multifaceted understanding of the phenomenon.

Data Collection

The data were randomly collected through in-depth analysis of texts, including literature, media, and online sources. Then, these data were verified and checked against the Oxford Learner's Dictionary to ensure that the Hindi-Urdu glossary terms were included in the Oxford English Dictionary [2], [19], [20]. Additionally, some Hindi-Urdu loanwords were cross-referenced with the Collins English Dictionary [21] to identify Hindi-Urdu loanwords in Standard English usage. This process involved scrutinizing the context, usage, and cultural connotations of the identified loanwords.

Data Samples

The data sample comprised approximately 300 Hindi-Urdu loanwords that have been integrated into the Standard English language. These loanwords are predominantly content words, especially nouns. These loanwords were specifically chosen to facilitate a comprehensive phonological analysis, focusing on consonantal changes in English syllable structure and their pronunciation within the English phonetic system.

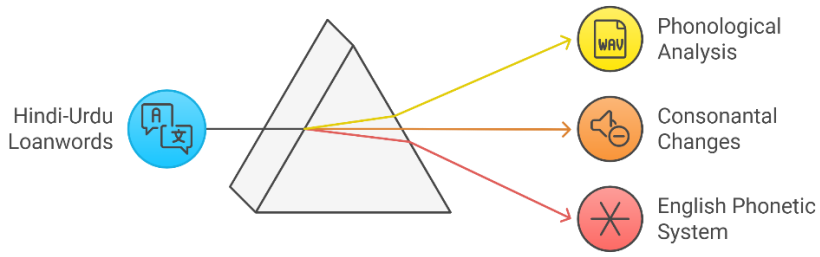


Figure 3. Consonantal Shifts in Loanwords

Data Analysis

We analyzed these loanwords to identify various phonological transformations, including alternations such as deaspiration, deaffrication, devoicing, deretroflexion, and deuvularization. We further observed consonantal shifts like interdentalization, dental to alveolarization, and labiodental to labial changes. The process of substitution was also witnessed as bilabial /m/ changes into alveolar /n/. Additionally, consonantal deletion takes place when labio-dental /v/ and glottal /ɦ/ (in words like gherāv and sipāhī) are deleted in English. Furthermore, we observed the processes of changes in more than one consonant within a borrowed word, as seen in *juggernaut*. These processes occur when Hindi-Urdu loanwords are integrated into the English phonological system and can result in changes to their original pronunciation. Our analysis focuses on identifying the specific consonantal changes that occur in the loanwords, comparing their original pronunciation in Hindi-Urdu to their pronunciation in English, and discussing the implications of these changes for English phonology. Additionally, we look for any patterns or trends observed in the phonological adaptation of Hindi-Urdu loanwords in English.

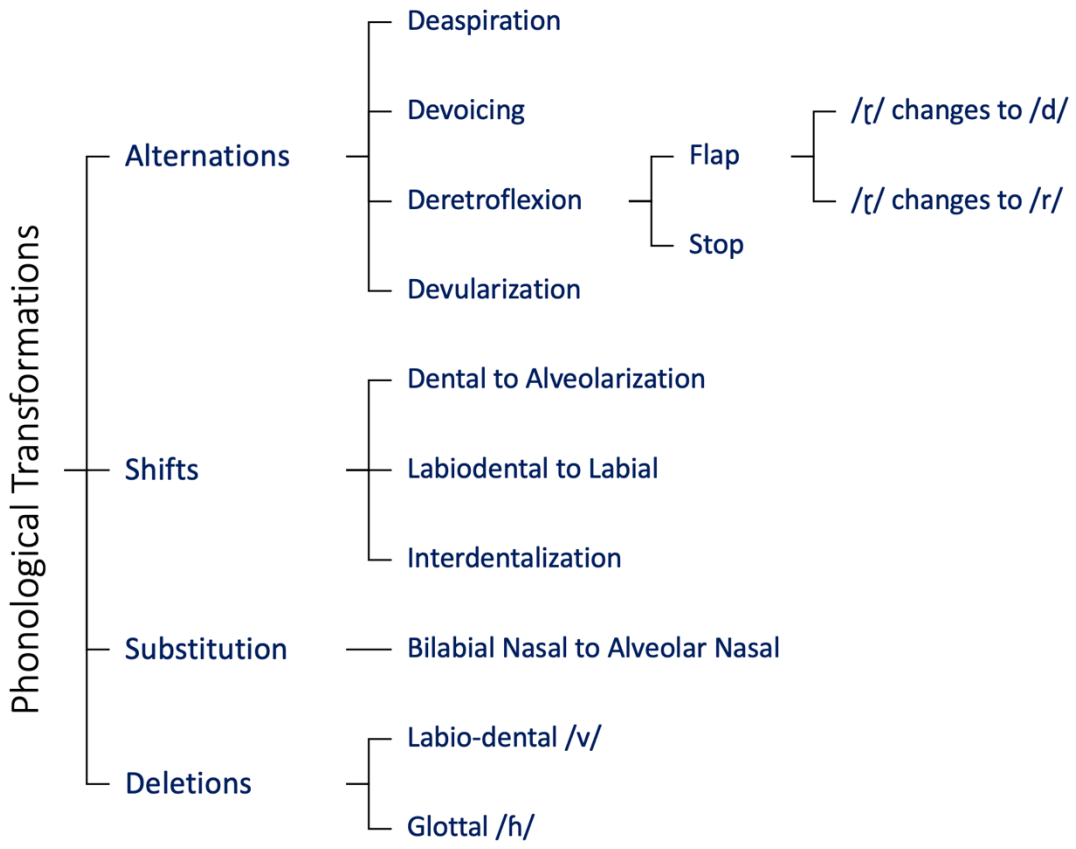


Figure 4. Phonological Transformations in Loanwords

RESULT AND DISCUSSIONS

When Hindi-Urdu words are incorporated into English, several consonantal modifications often occur, as detailed in various phonological analyses. The following overview provides a comprehensive examination of these changes. In the data presented, 'UK' and 'US' denote British English and American English, respectively. Further, the term, OELD refers to the Oxford English Learner's Dictionary and CED to the Collins English Dictionary.

Deaspiration

Deaspiration is a phonological process where an aspirated sound loses its aspiration and becomes a non-aspirated sound. Deaspiration often occurs, especially for speakers of languages that do not have aspirated consonants or where aspiration is less distinctive. Let's have a glance at the examples below:

Table 1. The Examples of Deaspiration

No	Hindi-Urdu Glossary	Phonemic Transcription	English Glossary	Phonemic Transcription	OELD Meaning
1	khāṭ) کھاٹ खाट	/kʰaːʈ/	cot	/kɒt/ UK /kɑːt/ US	a small bed with high sides for a baby or young child.
2	chhīnṭ) چھینٹ छींट	/tʃʰiːnt/	chintz	/tʃɪnts/ UK/US	a type of shiny cotton cloth with a printed design, especially of flowers, used for making curtains, covering furniture, etc.
3	ghī گھی घी	/gʰiː/	ghee	[giː] UK/US	a type of butter used in South Asian cooking

We note that when the Hindi-Urdu word /tʃʰiːnt/ is borrowed into English, it undergoes deaspiration and is pronounced as /tʃɪnts/. The aspirated /tʃʰ/ sound of Hindi-Urdu is deaspirated to /tʃ/. Similarly, the word /kʰaːt/, undergoes deaspiration in English and is pronounced as /kɒt/ and /kɑːt/, and in the case of the word /gʰiː/, the initial aspirated /gʰ/ sound is deaspirated to /g/.

Devoicing

Devoicing is a phonological process that occurs when certain sounds lose their voicing (voiced sounds become voiceless sounds) when borrowed into another language. In the context of Hindi-Urdu words borrowed into English, we can observe devoicing in the following examples:

Table 2. The Examples of Devoicing

No	Hindi-Urdu Glossary	Phonemic Transcription	English Glossary	Phonemic Transcription	OELD Meaning
1	bahū بہو बहू	/bə.ɦuː/	bahu	/ˈbɑːhuː/ UK/US	the wife of your son

2	hāṭ ہاٹ हाट	/ɦaːʈ/	haat	/hɑːt/ UK/US	a market, especially one held regularly in a rural area
3	jihād جہاد जिहाद	/dʒɪ.ɦaːɖ/	jihad	/dʒɪˈhɑːd/ UK/US	a spiritual struggle within yourself to stop yourself from breaking religious or moral laws, especially in Islam

Here, we notice that the voiced glottal fricative /ɦ/ is devoiced to /h/ when borrowed into English. There are several words found in English like that of this.

Deretroflexion

Deretroflexion is a specific phonological process where a retroflex consonant changes to a non-retroflex consonant, typically moving towards alveolar, palatal, or post-alveolar articulations. This means that the tongue moves forward in the mouth and the articulation becomes less retracted. This process might occur as part of a language change or in individual speech patterns. In some languages, this shift can result from sound changes over time or as a way to simplify articulation.

1. Deretroflexion of Flap

Hindi-Urdu retroflex flap sound /ɽ/ changes to an alveolar sound /d/ and post-alveolar approximant sound /r/ through the deretroflexion phonological process.

Table 3. The Examples of Deretroflexion of Flap

No	Hindi-Urdu Glossary	Phonemic Transcription	English Glossary	Phonemic Transcription	OELD Meaning
1	jugāṛ جگاڑ जुगाड़	/dʒʊ.gaːɽ/	jugaad	/dʒʊˈgɑːd/ UK/ US	involving the use of skill and imagination to find an easy solution to a problem or to fix or make something using cheap, basic items
2	tāṛī تاڑی ताड़ी	/ʈaː.ɽiː/	toddy	/ˈtɒdi/ UK /ˈtɑːdi/ US	a drink made with strong alcohol, sugar, hot water and sometimes spices
3	pagṛī پگڑی पगड़ी	/pʌgɽiː/	pagri	/ˈpʌgriː/ UK	a turban or headscarf (CED)
4	sāṛī ساڑی साड़ी	/saːɽi/	sari	/sɑːri/ UK/US	a long piece of cloth that is wrapped around the body to make a long dress, worn by women in South Asia

We observe that in the word /dʒʊ.gaːɽ/, the retroflex flap /ɽ/ is deretroflexed to /d/, resulting in the English pronunciation /dʒʊˈgɑːd/ and similarly, in the word /ʈaː.ɽiː/, the retroflex flap /ɽ/ is deretroflexed to /d/, leading to the English pronunciation /ˈtɒdi/ or /ˈtɑːdi/ whereas in the words /pʌgɽiː/ and /saːɽi/, the retroflex flap /ɽ/ is deretroflexed to /r/, resulting in the English pronunciation

/ˈpʌgriː/ and /sɑːri/ respectively. The retroflex flap sound in the original word is realized as a postalveolar approximant in English.

2. Deretroflexion of Stop

Hindi-Urdu retroflex stop sound /ɖ/ and /ʈ/ change to alveolar sounds /d/ and /t/ in English pronunciation.

Table 4. The Examples of Deretroflexion of Stop

No	Hindi-Urdu Glossary	Phonemic Transcription	English Glossary	Phonemic Transcription	OELD Meaning
1	ḍingī ڈینگی डींगी	/ɖɪŋgi/	dinghy	/ˈdɪŋi/ UK /ˈdɪŋgi/ US	a small open boat that you sail or row
2	ḍosā ڈوسا डोसा	/ɖoːsaː/	dosa	/ˈdəʊsə/ UK/US	a southern Indian pancake made with rice flour
3	ghāṭ گھاٹ घाट	/gʰaːʈ/	ghat	/gɑːt/ UK/US	steps leading down to a river or lake

We see that in the word /ɖɪŋgi/, the retroflex stop /ɖ/ is deretroflexed to /d/, resulting in the English pronunciation /ˈdɪŋi/ or /dɪŋgi/ and similarly, in the word /ɖoːsaː/, the retroflex stop /ɖ/ is deretroflexed to /d/, leading to the English pronunciation /ˈdəʊsə/ whereas in the words /gʰaːʈ/, the retroflex stop /ʈ/ is deretroflexed to /t/, resulting in the English pronunciation /gɑːt/.

Deuvularization

Deuvularization is a phonological process in which a uvular sound is replaced by a sound produced at a different place of articulation, typically a more anterior position such as the velar or palatal area. In simpler terms, it's the shift from sounds articulated with the back of the tongue against the uvula to sounds articulated further forward in the mouth.

Table 5. The Examples of Deuvularization

No	Hindi-Urdu Glossary	Phonemic Transcription	English Glossary	Phonemic Transcription	OELD Meaning
1	qīmā قیمہ क़ीमा	/qiːmaː/	keema	/ˈkiːmə/ UK/US	meat that has been cut into very small pieces; a spicy dish made using this ingredient
2	ḳhākī خاکی ख़ाकी	/xaːkiː/	khaki	/ˈkɑːki/ UK /ˈkɑːki/ US	a strong yellow-brown cloth, used especially for making military uniforms
3	niqāb (naqāb) نقاب नक़ाब	/niqaːb/ /naqaːb/	niqab	/nɪˈkɑːb/ UK/US	a piece of cloth that covers the face but not the eyes, worn in public by some Muslim women

We note that the initial uvular sound /q/ in the word /qiːmaː/ transitions to the velar sound /k/ in English, thereby facilitating pronunciation for English speakers. Similarly, the initial uvular sound /x/ in the word /xaːkiː/ is adapted in English to /ˈkɑːki/. Additionally, the uvular sound /q/ in /niqaːb/ is rendered as the velar /k/, resulting in the English pronunciation /nɪˈkɑːb/. Briefly speaking, the Uvular sounds /q/ and /x/ do not exist in English, therefore, they are replaced by a velar sound /k/ to facilitate the English pronunciation.

Interdentalisation

Interdentalization is a phonological process where a sound that is typically produced with the tongue in a different position (such as dental or alveolar) is articulated with the tongue placed between the teeth, making it an interdental sound. Non-interdental sounds like dental aspirate /t̪ʰ/ and retroflex aspirate /ʈʰ/ are changed into interdental sound /θ/ when borrowed into English from Hindi-Urdu.

Table 6. The Examples of Interdentalisation

No	Hindi-Urdu Glossary	Phonemic Transcription	English Glossary	Phonemic Transcription	OELD Meaning
1	thānā تھانا थाना	/t̪ʰaːnaː/	thana	/ˈθɑːnɑː/ UK/US	a police station
2	ṭhag ٹھگ ठग	/ʈʰʌg/	thug	/θʌg/ UK/US	a violent person, especially a criminal

We observe that the initial dental aspirated sound /t̪ʰ/ in the word /t̪ʰaːnaː/ is adapted to the interdental sound /θ/ in the English word /ˈθɑːnɑː/ and similarly, the initial retroflex aspirated sound /ʈʰ/ in the word /ʈʰʌg/ is rendered as the interdental sound /θ/ in the English word /θʌg/.

Dental to Alveolarization

Dental to alveolarization is a phonological process where dental sounds (those produced with the tongue against the upper teeth) shift to alveolar sounds (produced with the tongue against the alveolar ridge, which is just behind the upper front teeth). Dental to alveolarization is a common occurrence in English borrowings from Hindi-Urdu, as shown in the examples below:

Table 7. The Examples of Dental to Alveolarization Alterations

No	**Hindi-Urdu Glossary**	**Phonemic Transcription**	**English Glossary**	**Phonemic Transcription**	**OELD Meaning**
1	dharm دھرم धर्म	/d̪ʰərm/	dharma	/ˈdɑːmə/ UK /ˈdɑːrmə/ US	(in Hinduism) the law that affects the whole universe and on which all correct behaviour is based
2	dalit دلت दलित	/d̪ə.lɪt̪/	dalit	/ˈdʌlɪt/ UK / US	(in the traditional Indian caste system) a member of the caste that is considered the

					lowest and that has the fewest advantages
3	sharbat شربت शर्बत	/ʃʌrbʌʈ/	sherbet	/ˈʃɜːbət/ UK /ˈʃɜːrbət/ US	a sweet frozen food made from sugar, water and fruit juice, often eaten as a dessert

We observe that the dental /ɖʰ/ sound in the word /ɖʰərm/ shifts to the alveolar sound /d/ in English, making it easier for English speakers to pronounce. Similarly, the word /ɖə.lɪʈ/ changes in English to be pronounced as /ˈdʌlɪt/. Further, the final dental sound /ʈ/ in /ʃʌrbʌʈ/ becomes the alveolar sound /t/, resulting in the English pronunciation /ˈʃɜːbət/ or /ˈʃɜːrbət.

Labiodental to Labial

Labiodental to labial is a phonological process where a sound that is normally articulated with the lower lip against the upper teeth (labiodental) shifts to a sound articulated with both lips together (labial). The labiodental /v/ sound in the Hindi-Urdu word becomes the labial sound /w/ in English word.

Table 8. The Examples of Labiodental to Labial Alterations

No	Hindi-Urdu Glossary	Phonemic Transcription	English Glossary	Phonemic Transcription	OELD Meaning
1	navāb نواب नवाब	/nʌvɑːb/	nawab	/nəˈwɑːb/ UK /nəˈwɑːb/ US	a Muslim with high social status or rank
2	svāmī سوامی स्वामी	/svaːmiː/	swami	/ˈswɑːmi/ UK/US	a Hindu religious teacher
3	vālā والا वाला	/vaːlaː/	wallah	/ˈwɒlə/ UK/US	a person connected with a particular job or place

We find that the labiodental /v/ sound in the word /nʌvɑːb/ becomes labial sound /w/. Similarly, the word /svaːmiː/, changes to English, resulting in pronunciation like /ˈswɑːmi/. Additionally, the initial labiodental sound /v/ in the word /vaːlaː/gets altered to the labial sound /w/ in the word /ˈwɒlə/ in English.

Labiodental and Glottal being Deleted

The deletion of labiodental and glottal sounds in English can be attributed to several phonological processes and historical developments. This can involve the dropping, replacement, or both of certain sounds, including the labiodental /v/ and the glottal /ɦ/ in the following examples.

Table 9. The Examples of Labiodental and Glottal Deleted

No	Hindi-Urdu Glossary	Phonemic Transcription	English Glossary	Phonemic Transcription	OELD Meaning
1	gherāv گھیراؤ	/gʰeːraːv/	gherao	/geˈraʊ/ UK/US	a protest in which workers prevent

	घेराव				employers from leaving a place of work until they are given what they want
2	sipāhī سپاہی सिपाही	/sɪpaːɦiː/	sepoy	/ˈsiːpɔɪ/ UK/US	in the past, an Indian soldier serving under a British or European officer
3	mehndī مہندی मेहंदी	/mɛ̃ɦɖiː/	mehndi	/ˈmendi/ UK/US	the art of applying a temporary design to a person's skin using a red-brown dye (= a substance used to change the colour of something), especially for their wedding day

We view that the labiodental sound /v/ in the word /gʰeːraːv/ gets replaced by back high short vowel in English. Similarly, the word /sɪpaːɦiː/ loses its glottal sound in English and is pronounced as /ˈsiːpɔɪ/, and the vowel /aː/ is substituted by /ɔ/. In addition, the glottal sound /ɦ/ in the word /mɛ̃ɦɖiː/ is deleted in the English word /ˈmendi/.

Discussion

The findings of this study reveal the complex phonological adaptations occurring when Hindi-Urdu words are integrated into English. Phonological processes such as deaspiration, devoicing, deretroflexion, and deuvularization observed in this research align with established cross-linguistic adaptation patterns, where the phonetic structure and phonological preferences of the receiving language guide modifications to achieve phonological coherence. These results echo prior studies on phonetic assimilation in lexical borrowing, highlighting how the receiving language tends to modify phonological features of borrowed words to accommodate its own linguistic structures and ease of articulation [5], [22], [23], [24], [25], [26].

Deaspiration, a prominent feature of the findings, can be seen in the adaptation of words like *khāṭ*, which becomes *cot* in English as aspirated sounds lose their aspiration when assimilated. This phenomenon is consistent with Ni Luh Putu Sri Adnyani's [27] observations on cross-linguistic phonetic adaptations, where aspirated sounds are often deaspirated in languages like English that do not phonemically differentiate based on aspiration. Similarly, Ander Egurtzegi [28] found that deaspiration is a common phonetic adaptation in English for borrowed words from languages with strong aspiration, as English phonotactics generally omit such distinctions.

In addition to deaspiration, devoicing also plays a significant role in the phonological transformation of Hindi-Urdu borrowings. In words like *bahū*, voiced sounds such as /ɦ/ are devoiced, reflecting English's tendency to eliminate voiced phonemes less common in its own phonetic system. Studies by Klára Přečková et al. [29] and Haydée Fiszbein Wertzner et al. [30] reinforce these findings, as devoicing is observed as a standard adaptation in receiving languages with distinct preferences for voiceless sounds. For example, Siame et al. found similar devoicing patterns when Japanese borrowed words with voiced sounds from other languages, aligning with phonological preferences.

The process of deretroflexion observed in the transformation of Hindi-Urdu retroflex sounds further reflects phonological adaptation to English preferences. Words like *jugāṛ* becoming *jugaad* illustrate English's tendency to adapt retroflex sounds such as /ɽ/ into more familiar alveolar sounds. Hannah L. Goh et al. [31] also note that deretroflexion is a common response to cross-linguistic adaptation, particularly when the receiving language, like English, lacks retroflex sounds. Regina Galuh et al. [32] observed a similar pattern in Korean words adapted in Japanese, where retroflex sounds are often replaced with alveolar or postalveolar sounds, aligning with the phonological norms of the recipient language.

The findings regarding deuvularization, as seen in words like *qīmā* becoming *keema*, illustrate a significant adaptation where uvular sounds absent in English are replaced by velar sounds, facilitating easier pronunciation for English speakers. This supports theories suggesting that when specific phonemes are absent in the recipient language, they tend to be replaced by the nearest available sounds in the phonetic space of that language [33], [34], [35].

Notably, these phonological adaptations are not without exceptions, as evidenced by misiterations in words like *bhai*, which is pronounced as *bai* in English, altering both aspiration and syllabic structure. Such deviations from standard adaptation patterns indicate that perceptual errors, sociolinguistic influences, or orthographic inconsistencies may interfere with systematic phonological adaptation. This study reveals that while there are general patterns of phonological change across languages, occasional misiterations illustrate the variability in perception and interpretation by speakers of the recipient language.

Overall, these findings underscore the nuanced phonological adaptation processes in Hindi-Urdu loanwords into English, reflecting the complex interplay between phonetic requirements and phonological perception in the recipient language. The novelty of this research lies in its detailed analysis of consonantal transformations, an area that remains underexplored in previous studies. While much prior research has focused on the sociocultural and historical aspects of lexical borrowing, this study advances the understanding of phonological adaptation, particularly through consonantal changes driven by structural differences between the two languages. Consequently, this research provides a significant contribution to the literature on loanword phonology and language contact, particularly in the context of Indo-Aryan and Indo-European language interaction.

CONCLUSION

This study has provided a comprehensive examination of the phonological adaptation processes occurring when Hindi-Urdu loanwords are integrated into Standard English. Through detailed analysis, it was observed that consonantal adaptations systematically occur as a means to align Hindi-Urdu consonantal sounds with the phonotactic structure of English. These transformations reveal not only the flexibility of Hindi-Urdu phonemes when adapted to English but also underscore the linguistic constraints imposed by the phonological systems of the receiving language. Deaspiration, whereby aspirated sounds lose their aspiration in English, highlights the distinct phonemic preferences of English, as it generally disregards aspiration as a differentiating factor. Similarly, devoicing was evident in the transformation of voiced Hindi-Urdu phonemes to voiceless forms in English, illustrating English's phonetic biases. Deretroflexion and deuvularization processes further underscore English's preference for certain articulatory placements, replacing retroflex and uvular sounds with alveolar and velar substitutes, respectively, to conform to its

phonemic inventory. The findings contribute valuable insights into the phonological dynamics of language contact, particularly between Indo-Aryan and Indo-European languages. While previous studies have explored the sociocultural and lexical aspects of borrowing, this research fills an important gap by focusing on the phonological adaptations specific to Hindi-Urdu loanwords. By detailing these consonantal transformations, this study enriches our understanding of cross-linguistic phonological processes and highlights the complexities involved in the adaptation of loanwords to meet the phonological norms of a new language. Future research would benefit from an interdisciplinary approach that combines phonetic analysis with cognitive and sociolinguistic perspectives to further uncover the factors influencing phonological adaptation. Moreover, examining the adaptation of Hindi-Urdu loanwords in various English dialects could offer a deeper understanding of regional influences on phonological adjustments. This study thus not only advances theoretical insights into phonological adaptation in multilingual contexts but also sets a foundation for further exploration of language contact phenomena and their impact on global linguistic diversity.

AUTHORS INFORMATION

Corresponding Authors

Bairam Khan – Marsal Family School of Education, University of Michigan, Ann Arbor (United States)
orcid.org/ 0009-0001-0179-2164
Email: bairam@umich.edu

Authors

Bairam Khan – Marsal Family School of Education, University of Michigan, Ann Arbor (United States)
orcid.org/ 0009-0001-0179-2164
Mohammad Asad – Department of English, Nesma High Training Institute, Neom (Saudi Arabia);
orcid.org/0009-0005-8648-8231
Mahboob Zahid – Department of Linguistics, Central University of Rajasthan (India);
orcid.org/0009-0005-8648-8231

CONFLICT OF INTEREST

The authors declare no conflict of interest.

REFRENCES

[1] D. Salazar, "Release notes: Indian English words added to the Oxford English Dictionary," Oxford English Dictionary.

[2] H. R. Khan, M. A. Hasan, M. Kazmi, N. Fayyaz, H. Khalid, and S. A. Qazi, "A Holistic Approach to Urdu Language Word Recognition using Deep Neural Networks," *Eng. Technol. Appl. Sci. Res.*, vol. 11, no. 3, pp. 7140–7145, Jun. 2021, doi: 10.48084/etasr.4143.

[3] B. Bhujel and S. Sinha, "Linguistic landscape as social identity construction of the

public space: an empirical study of the plain region of Darjeeling district," *J. Multiling. Multicult. Dev.*, pp. 1–24, Jul. 2024, doi: 10.1080/01434632.2024.2371933.
[4] A. H. Abdulrazzaq and S. M. A. Al-Ubaidy, "Models of Phonological Loanword Adaptation," *Al-Adab J.*, vol. 3, no. 144, pp. 17–24, Mar. 2023, doi: 10.31973/aj.v3i144.3881.
[5] P. Siame, B. Amoakohene, and H. M. Kapau, "Phonological Processes Governing Borrowing from English to Lungu, Mambwe, and Namwanga Languages," *Daengku J. Humanit. Soc. Sci. Innov.*, vol. 3, no. 5, pp. 821–830, Oct. 2023, doi: 10.35877/454RI.daengku1765.
[6] Y. Oh and H. Son, "Lexical borrowing in Korean: a diachronic approach based on a corpus analysis," *Corpus Linguist. Linguist. Theory*, vol. 20, no. 2, pp. 407–431, May 2024, doi: 10.1515/cllt-2022-0102.
[7] P. Monaghan and S. G. Roberts, "Cognitive influences in language evolution: Psycholinguistic predictors of loan word borrowing," *Cognition*, vol. 186, pp. 147–158, May 2019, doi: 10.1016/j.cognition.2019.02.007.
[8] E. Zenner, L. Rosseel, and A. S. Calude, "The social meaning potential of loanwords: Empirical explorations of lexical borrowing as expression of (social) identity," *Ampersand*, vol. 6, p. 100055, 2019, doi: 10.1016/j.amper.2019.100055.
[9] D. Suhery, M. H. Raza, H. S. R. Purba, and Khairunnisah, "An Optimality Theory Account Of English Loanwords In Pilibhit Hindi-Urdu (Uttar Pradesh) India," *Int. J. Eng. Adv. Technol.*, vol. 8, no. 5c, pp. 758–765, Sep. 2019, doi: 10.35940/ijeat.E1108.0585C19.
[10] Y. L. Hasibuan Maisyaroh, NurMaulisa Tanjung, "An In-Depth Analysis Of Syllable Formation And Variations In Linguistic Phonology," *Bhinneka J. Bintang Pendidik. dan Bhs.*, vol. 1, no. 3, pp. 220–231, 2023.
[11] T. Khan, "A Contrastive Study of Homonyms in English and Urdu," *Int. J. Commun. Linguist. Stud.*, vol. 22, no. 2, pp. 1–39, 2023, doi: 10.18848/2327-7882/CGP/v22i02/1-39.
[12] W. Gould, "Rethinking Religion and Language in North India: The Hindi-Urdu Dispute and the Rise of Right-wing Populism," *Rev. Canar. Estud. Ingleses*, no. 76, pp. 29–44, 2018, doi: 10.25145/j.recaesin.2018.76.03.
[13] W. Hadi and Mulyono, "Clusters and series consonants of the Kaur language (phonological analysis)," *J. Appl. Stud. Lang.*, vol. 7, no. 1, pp. 23–34, 2023, doi: 10.31940/jasl.v7i1.23-34.
[14] S. Ambreen and C. K. S. To, "Phonological Development in Urdu-Speaking Children: A Systematic Review," *J. Speech, Lang. Hear. Res.*, vol. 64, no. 11, pp. 4213–4234, Nov. 2021, doi: 10.1044/2021_JSLHR-21-00148.
[15] D. Allen, "An overview and synthesis of research on English loanwords in Japanese," *Vocab. Learn. Instr.*, vol. 9, no. 1, pp. 33–50, Apr. 2020, doi: 10.7820/vli.v09.1.Allen.a.
[16] H. Choi, "Anglicisms in Korean: A diachronic corpus-based study with special reference to translation as a mode of language contact," *J. Lang. Linguist. Stud.*, vol. 17, no. 1, pp. 115–138, Mar. 2021, doi: 10.52462/jlls.7.
[17] M. de Heer, R. Blokland, M. Dunn, and O. Vesakoski, "Loanwords in Basic Vocabulary as an Indicator of Borrowing Profiles," *J. Lang. Contact*, vol. 16, no. 1, pp. 54–103, Mar. 2024, doi: 10.1163/19552629-bja10057.
[18] M. Alqarni, "Arabic loanwords in seven Ethiopian languages," *Brill's J. Afroasiatic Lang. Linguist.*, vol. 13, no. 2, pp. 423–475, Nov. 2021, doi: 10.1163/18776930-01302009.
[19] T. A. Khan, "Morphological Integration of Urdu Loan Words in Pakistani English," *English Lang. Teach.*, vol. 13, no. 5, p. 49, Apr. 2020, doi: 10.5539/elt.v13n5p49.
[20] M. Hazique Khatri, H. Tariq, M. Feroze, E. Ali, and Z. A. Junaidi, "A PRISMA-driven

Review of Speech Recognition based on English, Mandarin Chinese, Hindi and Urdu Language," *Int. J. Inf. Technol. Comput. Sci.*, vol. 16, no. 3, pp. 36–51, Jun. 2024, doi: 10.5815/ijitcs.2024.03.04.
[21] Z. Ahmad and I. Khan, "English Loanwords in Urdu Language: A Study of Borrowing," *JL3T (Journal Linguist. Lit. Lang. Teaching)*, vol. 10, no. 1, pp. 1–12, 2024, doi: 10.32505/jl3t.v10i1.6020.
[22] A. Ndunguru, "Phonological Adaption of Swahili Loanword in Matengo Language," *Int. J. online Humanit.*, pp. 1–23, Apr. 2024, doi: 10.24113/ijohmn.v11i2.280.
[23] Z. Dukic and C. C. Palmer, "The History of -eer in English: Suffix Competition or Symbiosis?," *Languages*, vol. 9, no. 3, p. 102, Mar. 2024, doi: 10.3390/languages9030102.
[24] N. Adalar and S. Tagliamonte, "Borrowed Nouns; Bilingual People: The Case of the 'Londrali' in Northern Cyprus," *Int. J. Biling.*, vol. 2, no. 2, pp. 139–159, Jul. 1998, doi: 10.1177/136700699800200202.
[25] H. De Smet and M. Shaw, "Missing link: code-switches, borrowings, and accommodation biases," *Linguist. Vanguard*, vol. 10, no. s2, pp. 139–148, Jun. 2024, doi: 10.1515/lingvan-2023-0088.
[26] A. Purba, B. Sinurat, R. Purba, B. P. S. Dhillon, E. Fatmawati, and N. Saputra, "Translation: The Implementation of Molina and Albir's Theory in a Movie From English into Indonesian," *Stud. Media Commun.*, vol. 11, no. 5, p. 25, Mar. 2023, doi: 10.11114/smc.v11i5.6011.
[27] N. L. P. S. Adnyani, "Cross-Linguistic Influence on a Bilingual Child's Phonological Development," *Proc. Thirteen. Conf. Appl. Linguist. (CONAPLIN 2020)*, vol. 546, no. Conaplin 2020, pp. 367–373, 2021, doi: 10.2991/assehr.k.210427.056.
[28] A. Egurtzegi, "Metathesis of aspiration as the source of anticipatory voicelessness in Basque," *J. French Lang. Stud.*, vol. 29, no. 2, pp. 265–279, Jul. 2019, doi: 10.1017/S0959269518000339.
[29] K. Přečková, P. Šturm, and J. Volín, "Language Proficiency and Sonorant Devoicing in English Plosive-Sonorant Clusters," *Res. Lang.*, vol. 21, no. 4, pp. 443–459, Dec. 2023, doi: 10.18778/1731-7533.21.4.06.
[30] H. F. Wertzner, L. P. Neves, and L. M. T. Jesus, "Oral and Laryngeal Articulation Control of Voicing in Children with and without Speech Sound Disorders," *Children*, vol. 9, no. 5, p. 649, May 2022, doi: 10.3390/children9050649.
[31] H. L. Goh, L. Onnis, and S. J. Styles, "Is retroflexion a stable cue for distributional learning for speech sounds across languages? Learning for some bilingual adults, but not generalisable to a wider population in a well powered pre-registered study," *PeerJ*, vol. 11, p. e15467, Jul. 2023, doi: 10.7717/peerj.15467.
[32] R. G. P. Pratidina and Agus Subiyanto, "The Characteristics of Korean Artists in Pronouncing English Words on Korean Reality Shows: A Generative Phonology Perspective," *Rainbow J. Lit. Linguist. Cult. Stud.*, vol. 13, no. 1, pp. 11–20, 2024, doi: 10.15294/rainbow.v13i1.1270.
[33] C. Everett, "The Sound Systems of Languages Adapt, But to What Extent?," *Cad. Linguística*, vol. 2, no. 1, pp. 01–23, Apr. 2021, doi: 10.25189/2675-4916.2021.v2.n1.id342.
[34] I. Diani and A. Azwandi, "Phonological Change Processes of English and Indonesian," *JOALL (Journal Appl. Linguist. Lit.*, vol. 6, no. 1, pp. 133–148, 2021, doi: 10.33369/joall.v6i1.13642.
[35] J. Cleland and J. M. Scobbie, "The Dorsal Differentiation of Velar From Alveolar Stops in Typically Developing Children and Children With Persistent Velar Fronting," *J. Speech, Lang. Hear. Res.*, vol. 64, no. 6S, pp. 2347–2362, Jun. 2021, doi: 10.1044/2020_JSLHR-20-00373.